

SEQUENCE LISTING

<110> Napier, Johnathan A.

<120> Polyunsaturated Fatty Acid (PUFA) Elongase from *Caenorhabditis elegans*

<130> 76/7

<140> PCT/GB00/01035

<141> 2000-03-20

<160> 22

<170> PatentIn Ver. 2.1

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 Gln Lys Tyr Trp Tyr His Ser Ile Thr Ile Ser Val Leu Tyr Phe Ile
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Leu Ile Lys Val Ile Gln Lys Phe Met Glu Asn Arg Lys Pro Phe Thr
 65 70 75 80
 Leu Lys Tyr Pro Leu Ile Leu Trp Asn Gly Ala Leu Ala Ala Phe Ser
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 Ile Ile Ala Thr Leu Arg Phe Ser Ile Asp Pro Leu Arg Ser Leu Tyr
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 Ala Glu Gly Phe Tyr Lys Thr Leu Cys Tyr Ser Cys Asn Pro Thr Asp
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 130 135 140
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 145 150 155 160
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 Gly Ala Glu His Thr Ala Ala Gly Arg Phe Tyr Ile Leu Met Asn Tyr
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 Tyr Arg Leu Pro Lys Trp Val Ser Met Thr Val Thr Thr Val Gln Thr
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 Thr Gln Met Leu Ala Gly Val Gly Ile Thr Trp Met Val Tyr Lys Val
 225 230 235 240
 Lys Thr Glu Tyr Lys Leu Pro Cys Gln Gln Ser Val Ala Asn Leu Tyr
 245 250 255
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Val	Ala	Val	Ile	Phe	Thr	Gly	Lys	Lys	Val	Val	Leu	Ile	Tyr	Lys	Lys	50	55	60	
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Arg	Asn	Arg	Lys	Ser	Leu	Asn	Ser	Ser	Gln	Met	Phe	Gln	Ile	Met	Glu	85	90	95	
Lys	Tyr	Lys	Pro	Phe	Gln	Leu	Asp	Thr	Pro	Leu	Phe	Val	Trp	Asn	Ser	100	105	110	
Phe	Leu	Ala	Ile	Phe	Ser	Ile	Leu	Gly	Phe	Leu	Arg	Met	Thr	Pro	Glu	115	120	125	
Phe	Val	Trp	Ser	Trp	Ser	Ala	Glu	Gly	Asn	Ser	Phe	Lys	Tyr	Ser	Ile	130	135	140	
Cys	His	Ser	Ser	Tyr	Ala	Gln	Gly	Val	Thr	Gly	Phe	Trp	Thr	Glu	Gln	145	150	155	160
Phe	Ala	Met	Ser	Lys	Leu	Phe	Glu	Leu	Ile	Asp	Thr	Ile	Phe	Ile	Val	165	170	175	
Leu	Arg	Lys	Arg	Pro	Leu	Ile	Phe	Leu	His	Trp	Tyr	His	His	Val	Thr	180	185	190	
Val	Met	Ile	Tyr	Thr	Trp	His	Ala	Tyr	Lys	Asp	His	Thr	Ala	Ser	Gly	195	200	205	
Arg	Trp	Phe	Ile	Trp	Met	Asn	Tyr	Gly	Val	His	Ala	Leu	Met	Tyr	Ser	210	215	220	
Tyr	Tyr	Ala	Leu	Arg	Ser	Leu	Lys	Phe	Arg	Leu	Pro	Lys	Gln	Met	Ala	225	230	235	240
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Ile	Gly	Val	Thr	Val	Tyr	Arg	Ile	Lys	Ser	Ser	Gly	Glu	Tyr	Cys	Gln	260	265	270	
Gln	Thr	Trp	Asp	Asn	Leu	Gly	Leu	Cys	Phe	Gly	Val	Tyr	Phe	Thr	Tyr	275	280	285	
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325 330 335

Gln Cys Ser Glu Asn Asn Tyr Lys Ile Gln Phe Ser Ser Asn Phe Val
340 345 350

Asn Val Asp Gly Lys Lys His Lys Lys Thr Tyr Glu Leu Ile Leu Pro
355 360 365

Arg Arg Lys Met Thr Thr Ile Leu Thr Phe Leu Phe Gly Lys Asn Arg
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Ile Phe Ser Lys Tyr Gln Lys Asn Arg Lys Asn Ile Ser Ile Pro Val
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Asp Phe Glu Ile Leu Glu Pro Lys Glu Asp Ile Asn Ala Asn Ile Ala
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Phe Gly Gln Lys Leu Met Ala His Arg Lys Pro Phe Asp Leu Gln Asn
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Thr Leu Ala Leu Trp Asn Phe Gly Phe Ser Leu Phe Ser Gly Ile Ala
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Ala Tyr Lys Leu Ile Pro Glu Leu Phe Gly Val Phe Met Lys Asp Gly
85 90 95

Phe Val Ala Ser Tyr Cys Gln Asn Glu Asn Tyr Tyr Thr Asp Ala Ser
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Thr Gly Phe Trp Gly Trp Ala Phe Val Met Ser Lys Ala Pro Glu Leu
 115 120 125
 Gly Asp Thr Met Phe Leu Val Leu Arg Lys Lys Pro Val Ile Phe Met
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 His Trp Tyr His His Ala Leu Thr Phe Val Tyr Ala Val Val Thr Tyr
 145 150 155 160
 Ser Glu His Gln Ala Trp Ala Arg Trp Ser Leu Ala Leu Asn Leu Ala
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 Val His Thr Val Met Tyr Phe Tyr Phe Ala Val Arg Ala Leu Asn Ile
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 Gln Thr Pro Arg Pro Val Ala Lys Phe Ile Thr Thr Ile Gln Ile Val
 195 200 205
 Gln Phe Val Ile Ser Cys Tyr Ile Phe Gly His Leu Val Phe Ile Lys
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 Ser Ala Asp Ser Val Pro Gly Cys Ala Val Ser Trp Asn Val Leu Ser
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Tyr	Ile	Ile	His	Ala	Phe	Met	Tyr	Gly	Tyr	Tyr	Leu	Leu	Lys	Ser	Leu
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225					230					235					240
Thr	Ala	Ile	Gly	Phe	Phe	Met	Leu	Thr	Thr	Tyr	Phe	Tyr	Leu	Trp	Ile
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 <213> C. elegans

<400> 19
 Met Pro Gln Gly Glu Val Ser Phe Phe Glu Val Leu Thr Thr Ala Pro
 1 5 10 15
 Phe Ser His Glu Leu Ser Lys Lys His Ile Ala Gln Thr Gln Tyr Ala
 20 25 30

Ala Phe Trp Ile Ser Met Ala Tyr Val Val Val Ile Phe Gly Leu Lys
 35 40 45

Ala Val Met Thr Asn Arg Lys Pro Phe Asp Leu Thr Gly Pro Leu Asn
 50 55 60

Leu Trp Asn Ala Gly Leu Ala Ile Phe Ser Thr Leu Gly Ser Leu Ala
 65 70 75 80

Thr Thr Phe Gly Leu Leu His Glu Phe Phe Ser Arg Gly Phe Phe Glu
 85 90 95

Ser Tyr Ile His Ile Gly Asp Phe Tyr Asn Gly Leu Ser Gly Met Phe
 100 105 110

Thr Trp Leu Phe Val Leu Ser Lys Val Ala Glu Phe Gly Asp Thr Leu
 115 120 125

Phe Ile Ile Leu Arg Lys Lys Pro Leu Met Phe Leu His Trp Tyr His
 130 135 140

His Val Leu Thr Met Asn Tyr Ala Phe Met Ser Phe Glu Ala Asn Leu
 145 150 155 160

Gly Phe Asn Thr Trp Ile Thr Trp Met Asn Phe Ser Val His Ser Ile
 165 170 175

Met Tyr Gly Tyr Tyr Met Leu Arg Ser Phe Gly Val Lys Val Pro Ala
 180 185 190

Trp Ile Ala Lys Asn Ile Thr Thr Met Gln Ile Leu Gln Phe Val Ile
 195 200 205

Thr His Phe Ile Leu Phe His Val Gly Tyr Leu Ala Val Thr Gly Gln
 210 215 220

Ser Val Asp Ser Thr Pro Gly Tyr Tyr Trp Phe Cys Leu Leu Met Glu
 225 230 235 240

Ile Ser Tyr Val Val Leu Phe Gly Asn Phe Tyr Tyr Gln Ser Tyr Ile
 245 250 255

Lys Gly Gly Gly Lys Lys Phe Asn Ala Glu Lys Lys Thr Glu Lys Lys
 260 265 270

Ile Glu

<210> 20
 <211> 281
 <212> PRT
 <213> C. elegans

<400> 20

Met Tyr Leu Asn Tyr Phe Ala Thr Glu Ile Phe His Arg Ser Ala Val
1 5 10 15

Cys Glu Thr Glu Ala Cys Arg Ser Ser Lys Ile Met Ile Ala Asp Val
20 25 30

Phe Lys Trp Lys Phe Asp Ala Asn Glu Leu Trp Ser Leu Leu Thr Asn
35 40 45

Gln Asp Glu Val Phe Pro His Ile Arg Ala Arg Arg Phe Ile Gln Glu
50 55 60

His Phe Gly Leu Phe Val Gln Met Ala Ile Ala Tyr Val Ile Leu Val
65 70 75 80

Phe Ser Ile Lys Arg Phe Met Arg Asp Arg Glu Pro Phe Gln Leu Thr
85 90 95

Thr Ala Leu Arg Leu Trp Asn Phe Phe Leu Ser Val Phe Ser Ile Tyr
100 105 110

Gly Ser Trp Thr Met Phe Pro Phe Met Val Gln Gln Ile Arg Leu Tyr
115 120 125

Gly Leu Tyr Gly Cys Gly Cys Glu Ala Leu Ser Asn Leu Pro Ser Gln
130 135 140

Ala Glu Tyr Trp Leu Phe Leu Thr Ile Leu Ser Lys Ala Val Glu Phe
145 150 155 160

Val Asp Thr Phe Phe Leu Val Leu Arg Lys Lys Pro Leu Ile Phe Leu
165 170 175

His Trp Tyr His His Met Ala Thr Phe Val Phe Phe Cys Ser Asn Tyr
180 185 190

Pro Thr Pro Ser Ser Gln Ser Arg Val Gly Val Ile Val Asn Leu Phe
195 200 205

Val His Ala Phe Met Tyr Pro Tyr Tyr Phe Thr Arg Ser Met Asn Ile
210 215 220

Lys Val Pro Ala Lys Ile Ser Met Ala Val Thr Val Leu Gln Leu Thr
225 230 235 240

Gln Phe Met Cys Phe Ile Tyr Gly Cys Thr Leu Met Tyr Tyr Ser Leu
245 250 255

Ala Thr Asn Gln Ala Arg Tyr Pro Ser Asn Thr Pro Ala Thr Leu Gln
260 265 270

Cys Leu Ser Tyr Thr Leu His Leu Leu
275 280

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<210> 21
 <211> 288
 <212> PRT
 <213> C. elegans

<400> 21

Met	Ala	Gln	His	Pro	Leu	Val	Gln	Arg	Leu	Leu	Asp	Val	Lys	Phe	Asp
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Thr	Lys	Arg	Phe	Val	Ala	Ile	Ala	Thr	His	Gly	Pro	Lys	Asn	Phe	Pro
			20					25					30		
Asp	Ala	Glu	Gly	Arg	Lys	Phe	Phe	Ala	Asp	His	Phe	Asp	Val	Thr	Ile
		35					40					45			
Gln	Ala	Ser	Ile	Leu	Tyr	Met	Val	Val	Val	Phe	Gly	Thr	Lys	Trp	Phe
	50					55					60				
Met	Arg	Asn	Arg	Gln	Pro	Phe	Gln	Leu	Thr	Ile	Pro	Leu	Asn	Ile	Trp
65					70					75					80
Asn	Phe	Ile	Leu	Ala	Ala	Phe	Ser	Ile	Ala	Gly	Ala	Val	Lys	Met	Thr
				85					90					95	
Pro	Glu	Phe	Phe	Gly	Thr	Ile	Ala	Asn	Lys	Gly	Ile	Val	Ala	Ser	Tyr
			100					105					110		
Cys	Lys	Val	Phe	Asp	Phe	Thr	Lys	Gly	Glu	Asn	Gly	Tyr	Trp	Val	Trp
		115					120					125			
Leu	Phe	Met	Ala	Ser	Lys	Leu	Phe	Glu	Leu	Val	Asp	Thr	Ile	Phe	Leu
	130					135					140				
Val	Leu	Arg	Lys	Arg	Pro	Leu	Met	Phe	Leu	His	Trp	Tyr	His	His	Ile
145					150					155					160
Leu	Thr	Met	Ile	Tyr	Ala	Trp	Tyr	Ser	His	Pro	Leu	Thr	Pro	Gly	Phe
			165						170					175	
Asn	Arg	Tyr	Gly	Ile	Tyr	Leu	Asn	Phe	Val	Val	His	Ala	Phe	Met	Tyr
			180					185					190		
Ser	Tyr	Tyr	Phe	Leu	Arg	Ser	Met	Lys	Ile	Arg	Val	Pro	Gly	Phe	Ile
		195					200					205			
Ala	Gln	Ala	Ile	Thr	Ser	Leu	Gln	Ile	Val	Gln	Phe	Ile	Ile	Ser	Cys
	210					215					220				
Ala	Val	Leu	Ala	His	Leu	Gly	Tyr	Leu	Met	His	Phe	Thr	Asn	Ala	Asn
225					230					235					240
Cys	Asp	Phe	Glu	Pro	Ser	Val	Phe	Lys	Leu	Ala	Val	Phe	Met	Asp	Thr
			245						250					255	

Thr Tyr Leu Ala Leu Phe Val Asn Phe Phe Leu Gln Ser Tyr Val Leu
 260 265 270

Arg Gly Gly Lys Asp Lys Tyr Lys Ala Val Pro Lys Lys Lys Asn Asn
 275 280 285

<210> 22
 <211> 269
 <212> PRT
 <213> C. elegans

<400> 22
 Met Ser Ala Glu Val Ser Glu Arg Phe Lys Val Trp Thr Gly Asn Asn
 1 5 10 15

Glu Thr Ile Ile Tyr Ser Pro Phe Glu Tyr Asp Ser Thr Leu Leu Ile
 20 25 30

Glu Ser Cys Arg Cys Thr Tyr Gln Leu Leu Ile Leu Leu Arg Gln Ile
 35 40 45

Tyr Tyr Arg Asp Ile Trp Ser His Gly Asn Leu Lys Ala Cys Asp Xaa
 50 55 60

Leu Leu Leu Ala Trp Asn Gly Phe Leu Ala Val Phe Ser Ile Met Gly
 65 70 75 80

Thr Trp Arg Phe Gly Ile Glu Phe Tyr Asp Ala Val Phe Arg Xaa Gly
 85 90 95

Phe Ile Xaa Ser Ile Cys Leu Ala Val Asn Pro Arg Ser Pro Ser Ala
 100 105 110

Phe Trp Ala Cys Met Phe Ala Leu Ser Lys Ile Ala Glu Phe Gly Asp
 115 120 125

Thr Met Phe Leu Val Leu Arg Lys Arg Pro Val Ile Phe Leu His Trp
 130 135 140

Tyr His His Ala Val Val Leu Ile Leu Ser Trp His Ala Ala Ile Glu
 145 150 155 160

Leu Thr Ala Pro Gly Arg Trp Phe Ile Phe Met Asn Tyr Leu Val His
 165 170 175

Ser Ile Met Tyr Thr Tyr Tyr Ala Ile Thr Ser Ile Gly Tyr Arg Xaa
 180 185 190

Pro Lys Ile Val Ser Met Thr Val Thr Phe Leu Gln Thr Leu Gln Met

195	200	205
Leu Ile Gly Val Ser Ile Ser Cys Ile Val Leu Tyr Leu Lys Leu Asn		
210	215	220
Gly Glu Met Cys Gln Gln Ser Tyr Asp Asn Leu Ala Leu Ser Phe Gly		
225	230	235
Ile Tyr Ala Ser Phe Leu Val Leu Ser Ser Phe Phe Asn Asn Ala Tyr		
245	250	255
Leu Val Lys Lys Asp Lys Lys Pro Asp Val Lys Lys Asp		
260	265	

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